

Review of Panchen's *Classification, Evolution, and the Nature of Biology*

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Isis, 85 (1): 182–183, March 1994

Alec L. Panchen. *Classification, Evolution, and the Nature of Biology*. xii + 403 pp., illus., figs., bibl., indexes. Cambridge/New York: Cambridge University Press, 1992. \$80 (cloth); \$34.95 (paper).

One of the deepest conceptual revolutions taking place in science today is the revolution in biological systematics. Beginning in the 1960s with the development of cladistic analysis, this revolution is now transforming all of comparative biology and threatens to uproot foundational concepts that have been in place since the time of Linnaeus. *Classification, Evolution, and the Nature of Biology* is an example of the growing body of secondary literature that attempts to synthesize what has been learned and to present a comprehensive picture of the new systematics.

The central focus of the book is contemporary systematic theory, but Alec Panchen in addition treats the history of systematics, the evidence for evolution, the modern synthesis and its critics, and the philosophy of science, making the volume overbroad. Novices are likely to find it insufficiently abridged to be useful, while specialists will wish for more thorough treatments of the topics considered. In his examination of contemporary systematic theory Panchen generally recognizes the important distinction that is now made between classification and phylogeny reconstruction, but it is central to his position that classificatory concepts still have a role to play in systematics. I am skeptical of this, and so cannot endorse this book as an introduction to contemporary systematic theory.

Historians will find Chapters 2 and 3, on the history of systematics, to be of greatest interest. Although Panchen does a better job

than some systematists have done in discussing the history of the field, he often describes things anachronistically, as when he treats a diagram from the 1840s as being equivalent to a modern unrooted tree. I am not averse to such comparisons when they are well founded, but in this particular case, the author of the diagram in question admitted reticulate relationships in his text and in other diagrams, and so he cannot be said to have been drawing “unrooted trees” in the modern sense. Panchen also perpetuates a long-standing confusion in systematics by failing to distinguish sharply between genealogical “trees of history” and logical, classificatory trees. While it is true that systematists have often confused these in the past, we will not be able to do either good history or good systematics until we make the distinction clearly in the present, so that we can apply it as an analytical tool in our studies of the past.

The chapter on the philosophy of science covers the usual subjects, from Karl Popper, to Thomas Kuhn and Paul Feyerabend, to modern cognitive and sociological approaches. Readers who have not followed these developments will find this chapter useful.

Classification, Evolution, and the Nature of Biology is a snapshot of one systematist's world view during an important transitional period in the history of science. If historians assemble a collection of such snapshots they will someday be able to piece together a fascinating picture of a scientific revolution, one that is happening all around them today.

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